

RG  
**PCT**

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

|  |           |   |
|--|-----------|---|
| <b>(51) International Patent Classification</b> <sup>6</sup> :<br><b>C12N 15/85, A61K 48/00</b>  | <b>A1</b> | <b>(11) International Publication Number:</b> <b>WO 99/43839</b><br><b>(43) International Publication Date:</b> 2 September 1999 (02.09.99)   |
| <b>(21) International Application Number:</b> PCT/US99/04332<br><b>(22) International Filing Date:</b> 26 February 1999 (26.02.99)<br><b>(30) Priority Data:</b><br>60/076,207 27 February 1998 (27.02.98) US<br><b>(71) Applicant (for all designated States except US):</b> THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA [US/US]; Suite 300, 3700 Market Street, Philadelphia, PA 19104 (US).<br><b>(72) Inventors; and</b><br><b>(75) Inventors/Applicants (for US only):</b> WEINER, David, B. [US/US]; 717 Beacom Lane, Merion Station, PA 19066 (US). KIM, Jong, J. [US/US]; 157 Orchard Drive, North Wales, PA 19454 (US). SIN, Jeong-Im [KR/US]; Apartment #706, 3817 Spruce Street, Philadelphia, PA 19104 (US).<br><b>(74) Agent:</b> DELUCA, Mark; Woodcock Washburn Kurtz Mackiewicz & Norris LLP, 46th floor, One Liberty Place, Philadelphia, PA 19103 (US). |           | <b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).<br><br><b>Published</b><br><i>With international search report.</i> |
| <b>(54) Title:</b> VACCINES, IMMUNOTHERAPEUTICS AND METHODS FOR USING THE SAME   |           |   |
| <b>(57) Abstract</b><br><br>Improved vaccines which include a nucleotide sequence that encodes immunomodulating protein operably linked to regulatory elements are disclosed. The improved vaccines include DNA vaccines, recombinant vaccines for delivering foreign antigen and live attenuated vaccines. Methods of immunizing individuals are disclosed. Compositions for and methods of treating individuals with autoimmune diseases are disclosed.  |           |   |